

CLAIMS

What Is Claimed Is:

1. An endodontic post comprising:
a rigid endodontic section and an apical tip
5 section;
wherein the rigid endodontic section comprises a shaft;
wherein the shaft comprises an opening extending through the shaft;
wherein the opening in the shaft comprises filling material therein; and
wherein the filling material extends out of the opening to form the apical tip section.
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2. The endodontic post of claim 1 wherein the apical tip section of the post is tapered.
3. The endodontic post of claim 1 wherein the apical tip section of the post is
15 narrower in diameter than the diameter of the endodontic section.
4. The endodontic post of claim 1 wherein the post further comprises a supracoronal portion.
- 20 5. The endodontic post of claim 1 wherein the opening extends fully the length of the shaft.
6. The endodontic post of claim 1 wherein the opening extends partially the length of the shaft.
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7. The endodontic post of claim 1 wherein the shaft is fabricated of metal, plastic, composite, ceramic, glass or polymeric material.
8. The endodontic post of claim 7 wherein the polymeric material is selected

from the group consisting of thermoplastic, thermoset, chemoplastic resins and mixtures thereof.

9. The endodontic post of claim 7 wherein the composite material comprises
5 fiber reinforced composite material.

10. The endodontic post of claim 7 wherein the composite material comprises
filler reinforced composite material.

10 11. The endodontic post of claim 1 wherein the filling material comprises a
thermoplastic or chemoplastic material.

12. The endodontic post of claim 1 wherein the filling material comprises a
resinous material.

15 13. The endodontic post of claim 1 wherein the filling material comprises gutta
percha.

14. The endodontic post of claim 1 wherein the filling material comprises
20 polyacrylate, polyurethane, polypropylene, polyethylene, polyamide, fluoropolymer,
polyester, polyphosphazene, polyanhydride, polysulfide, polyether, epoxy, polycarbonate,
polystyrene, polybutadiene, polyphenylene oxide, silicone rubber or a mixture thereof.

15. The endodontic post of claim 14 wherein the polyacrylate comprises
25 polymethyl methacrylate, polyhydroxy ethyl methacrylate, or hydroxy ethyl methacrylate
(HEMA).

16. The endodontic post of claim 14 wherein the fluoropolymer comprises
Teflon® PTFE or Teflon® PFA.

17. The endodontic post of claim 14 wherein the polyester comprises polylactic acid, glycolide, polycaprolactone or a co-polymer thereof.

5 18. The endodontic post of claim 14 wherein the polyester comprises polylactic acid, glycolide, polycaprolactone or a co-polymer thereof.

10 19. The endodontic post of claim 14 wherein the silicone rubber comprises polysiloxane.

15 20. The endodontic post of claim 1 wherein the filling material comprises polylactides, polyglycolides, polycaprolactones, polyanhydrides, polyamides, polyurethanes, polyesteramides, polyorthoesters, polydioxanones, polyacetals, polyketals, polycarbonates, polyorthocarbonates, polyphosphazenes, polyhydroxybutyrate, polyhydroxyvalerates, polyalkylene oxalates, polyethylene oxides, polyacrylates/methacrylates, polyalkylene succinates, poly(malic acid) polymers, polymaleic anhydrides, poly(methylvinyl) ethers, poly(amino acids), chitin, chitosan, and copolymers, terpolymers, or combinations or mixtures thereof.

20 21. The endodontic post of claim 12 wherein the filling material further comprises a plasticizing agent, antibiotic agent, cariostatic agent, antibacterial agent, anti-inflammatory agent, biologically active agent, or therapeutic agent, or mixtures thereof.

25 22. The endodontic post of claim 1 wherein the perimeter of the filler cone is the same as the perimeter of the shaft at the end of the filler cone that is in contact with the shaft.

23. A device for filling a root canal comprising:
a carrier; and
a filler cone;

wherein the carrier comprises an opening extending through the carrier;
wherein the opening in the carrier comprises filling material therein; and
wherein the filling material extends out of the opening to form the filler cone.

- 5 24. The device of claim 23 wherein the carrier and filler cone are tapered.
25. The device of claim 23 wherein the filler cone is narrower in diameter than the
 diameter of the carrier.
- 10 26. The device of claim 23 wherein the opening extends fully the length of the
 carrier.
27. The device of claim 23 wherein the opening extends partially the length of the
 carrier.
- 15 28. The device of claim 23 wherein the carrier is fabricated of metal, plastic,
 composite, ceramic, glass or polymeric material.
29. The device of claim 28 wherein the polymeric material is selected from the
20 group consisting of thermoplastic, thermoset, chemoplastic resins and mixtures thereof.
30. The device of claim 28 wherein the composite material comprises fiber
 reinforced composite material.
- 25 31. The device of claim 28 wherein the composite material comprises filler
 reinforced composite material.
32. The device of claim 23 wherein the filling material comprises a
 thermoplastic or chemoplastic material.

33. The device of claim 23 wherein the filling material comprises a resinous material.

5 34. The device of claim 23 wherein the filling material comprises gutta percha.

10 35. The device of claim 23 wherein the filling material comprises polyacrylate, polyurethane, polypropylene, polyethylene, polyamide, fluoropolymer, polyester, polyphosphazene, polyanhydride, polysulfide, polyether, epoxy, polycarbonate, polystyrene, polybutadiene, polyphenylene oxide, silicone rubber or a mixture thereof.

15 36. The device of claim 35 wherein the polyacrylate comprises polymethyl methacrylate, polyhydroxy ethyl methacrylate, or hydroxy ethyl methacrylate (HEMA).

37. The device of claim 35 wherein the fluoropolymer comprises Teflon® PTFE or Teflon® PFA.

20 38. The device of claim 35 wherein the polyester comprises polylactic acid, glycolide, polycaprolactone or a co-polymer thereof.

39. The device of claim 35 wherein the polyester comprises polylactic acid, glycolide, polycaprolactone or a co-polymer thereof.

25 40. The device of claim 35 wherein the silicone rubber comprises polysiloxane.

41. The device of claim 23 wherein the filling material comprises polylactides, polyglycolides, polycaprolactones, polyanhydrides, polyamides, polyurethanes,

polyesteramides, polyorthoesters, polydioxanones, polyacetals, polyketals, polycarbonates, polyorthocarbonates, polyphosphazenes, polyhydroxybutyrates, polyhydroxyvalerates, polyalkylene oxalates, polyethylene oxides, polyacrylates/methacrylates, polyalkylene succinates, poly(malic acid) polymers, polymaleic anhydrides, poly(methylvinyl) ethers,
5 poly(amino acids), chitin, chitosan, and copolymers, terpolymers, or combinations or mixtures thereof.

42. The device of claim 33 wherein the filling material further comprises a plasticizing agent, antibiotic agent, cariostatic agent, antibacterial agent, anti-inflammatory
10 agent, biologically active agent, or therapeutic agent, or mixtures thereof.

43. The device of claim 23 wherein the perimeter of the filler cone is the same as the perimeter of the carrier at the end of the filler cone that is in contact with the carrier.

15 44. A method for restoring the root canal of a tooth comprising:
preparing the root canal;
providing a post for insertion into the canal, whereby the post comprises a post section, the post section comprising a rigid endodontic section and an apical tip section, wherein the rigid endodontic section comprises a shaft, wherein the shaft comprises an
20 opening extending through the shaft, wherein the opening in the shaft comprises filling material therein, and wherein the filling material extends out of the opening to form the apical tip section; and
inserting the post into the canal, whereby the apical end of the root canal is filled by the apical tip section.

25 45. The method of claim 44 wherein the apical tip section is softened prior to insertion of the post into the canal.

46. The method of claim 44 further comprising inserting a sealing material into

the canal to bond the post to the canal prior to insertion of the post into the canal.

47. The method of claim 44 further comprising building a core on an end of the post that extends from the canal.

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48. The method of claim 47 further comprising placing a crown on the core.

49. A method for restoring the root canal of a tooth comprising:
preparing the root canal;

10 providing a device for filling a root canal whereby the device comprises a carrier and a filler cone, wherein the carrier comprises an opening extending through the carrier, wherein the opening in the carrier comprises filling material therein, and wherein the filling material extends out of the opening to form the filler cone;

15 inserting the carrier into the canal, whereby the apical end of the root canal is filled by the filler cone; and
removing the carrier from the filler cone.

20 50. The method of claim 49 wherein the entire carrier is removed from the filler cone.

51. The method of claim 49 wherein a portion of the carrier is removed from the filler cone.

25 52. The method of claim 49 wherein the filler cone is softened prior to insertion of the carrier into the canal.

53. The method of claim 49 further comprising injecting a sealing material into the canal to bond the filler cone to the canal prior to insertion of the carrier into the canal.

54. The method of claim 47 further comprising filling the tooth with composite material to complete the process.

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